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**WASTE PIT 5 AND 6 AND THE CLEARWELL
SAMPLING**

12/10/91

2503



Department of Energy
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DEC 10 1991

DOE-224-92

Mr. Graham E. Mitchell, DOE Coordinator
Ohio Environmental Protection Agency
40 South Main Street
Dayton, Ohio 45402

Dear Mr. Mitchell:

WASTE PIT 5 AND 6 AND THE CLEARWELL SAMPLING

Enclosed are responses to Ohio EPA comments on the sampling activity to be conducted for Waste Pits 5 and 6 and the clearwell along with a revised sampling plan.

Approval of this activity has already been received from the U.S. EPA. This work is scheduled to be initiated in December. Timely approval of this activity is requested.

If you or your staff have any additional comments or questions, please contact Oba Vincent at (513) 738-6937.

Sincerely,


Jack R. Craig
Fernald Remedial Action
Project Manager

FO:Vincent

Enclosures: As Stated

cc w/encl.:

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RESPONSE TO OHIO EPA COMMENTS

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Comment 1 A

Section 2, p. 2, 1st paragraph: The discussion concerning previous sampling events in the waste pits should reference appropriate work plans or reports to provide support for the position that the pits have been previously characterized. This should also include a discussion of how previous sampling events were conducted so that this information may be used in choosing a sampling method.

Response

The discussion in the Sampling Plan refers to the pit characterization study that was performed as part of the FEMP site Characterization Investigation Study as performed by Weston in 1987.

Resolution

Reference will be made to the CIS studies and the method used to collect the samples. Refer to Section 2.

Comment 1B

Section 2, p. 2, 1st paragraph: In the fourth sentence, change the reference from "corrective actions" to "closure activities."

Response

The section has been revised to include reference to the fact that Waste Pit 5 and the Clearwell have been designated as Hazardous Waste Management Units (HWMU) and are subject to Resource Conservation Recovery Act (RCRA) requirements. Since the characterization data that will be collected from the analysis will be used to augment the characterization of Waste Pit 5 and the Clearwell, this statement will be revised.

Resolution

Refer to section 2, page 2, first paragraph.

Comment 1C

Section 2, p. 2, 1st paragraph: The methods to be used for sampling in support of the RCRA closure actions (Appendix VIII and IX) within these waste pits should be detailed within this work plan. Will these samples be collected using methods similar to those proposed in this work plan? Will the samples be collected at depth and in various locations in order to assure representative samples?

Response

The samples that will be collected from the Waste Pits 5, 6 and Clearwell will be analyzed for constituents similar to those for the other waste pits as performed by ASI/IT as part of the RI/FS characterization. The samples will be analyzed for the following items or constituents:

- Full Radiological Parameters listed in RI/FS QAPP Table 4.3 plus Pb-210.
- HSL + Plus boron, cobalt, & thallium
- Full Appendix IX May be an overlap with the HSL + This covers analysis for all dioxins, furans, vols, semi-vols, metals, PCB's, & pesticides
- TCLP
- General Chemistry Includes total phosphates, TBP, ammonia, pH, total Kiedahl nitrogen, total organic nitrogen, oil & grease, bromide, chloride, nitrate, and sulphate
- Physical & Misc Parameters Moisture content, Total Organic Carbon, Specific Gravity, Particle Size, Cation Exchange Capacity, Atterberg Limits

Representative samples of the waste pit will be obtained using a random sampling procedure. In addition, for Waste Pit 5 and the Clearwell a directed sample at the outflow into the units have been designated. These directed samples will be used to evaluate heavier contaminants (such as residues of ores containing heavy metals) which would be subject to rapid settling. Pit 6 did not receive a liquid discharge, therefore, no directed sample locations are designated.

The primary intent of this sampling effort is to collect bulk material from the waste pits to be used in the development of treatability protocols for the waste material. A secondary effort is to provide additional data for the RI/FS characterization of the waste pits. In addition, the information will augment the characterization of Waste Pit 5 and the Clearwell since they have been declared Hazardous Waste Management Units (HWMUs) and are subject Resource Conservation Recovery Act (RCRA) regulations. It is recognized that the collection of stratified representative samples will be difficult utilizing several of the bulk sample collection methods identified in the Sampling Plan. However where it is practical, a true representative stratified sample will be collected. In order to accommodate this, a computer program has been used to determine the stratified random sample locations. The computerized model is based upon EPA Document SW-846 "Test Method for the Evaluation of Solid Waste, Physical/Chemical Methods". Eight sample locations (random and directed as applicable) were identified for Waste Pits 5, 6 and the Clearwell. The sample grids and coordinates were generated.

A minimum of eight 55-gallon drums will be collected from each pit. Samples will be collected from each drum to be used to characterize the waste material. All samples will be collected, labeled, and sealed consistent with the requirements identified in EPA Document SW-846 "Test Method for the Evaluation of Solid Waste, Physical/Chemical Methods". All samples will then be transported to the appropriate laboratory for analysis accompanied by the required Analysis Request/Custody Record form. All sampling activities will be performed in accordance with (at a minimum) the RI/FS Quality Assurance Project Plan (QAPP) and EPA Document SW-846 "Test Method for the Evaluation of Solid Waste, Physical/Chemical Methods".

Resolution

A section will be added discussing the requirements for the sampling of the drummed wastes and the type of analysis that will be performed on the material. Refer to Sections 5.1 and 5.3.

Comment 1D

Section 2, p. 2, 1st paragraph: Although this is not a characterization sampling effort, samples to be collected for treatability studies must be representative of the waste pit contents. The collection of representative samples from the waste pits should be clearly stated as an objective within this section. Discussions supporting the ability of the proposed sampling methods to collect representative samples should be included.

Response

The samples that will be collected will be used to augment the RCRA characterization of the pits as well as provide additional characterization data of Waste Pits 5, 6 and the Clearwell in support of the RI/FS program. Although it is recognized that utilizing several of the sample collection methods identified in the Sampling Plan will not provide true stratified samples, the random generation of the sample locations will provide a representative sample from the waste pits. Utilizing the computer generated random sampling location plan identified in the response to comment 1C, samples will be collected from a minimum of eight randomly selected locations at varying depths (where the sample collection method assures that a true stratified sample can be collected) to assure that a truly representative sampling of the waste pit is being performed.

Resolution

Additional discussion will be added to Section 2 identifying the need for the sampling to collected representative stratified samples to allow for the full characterization of the waste pits. Refer to Section 2.

Comment 2

Section 3, p.2, 1st paragraph: State that there is "... open air exposure of the waste for approximately one-third of the length ..."

Response

Agree. Will revise statement.

Resolution

Refer to Section 3, page 2.

Comment 3

Section 3, pg 3, 2nd paragraph: Include the actual date when the Clearwell was constructed.

Response

The Clearwell was constructed in 1952 at the same time as Waste Pit 1. Will revise section.

Resolution

Refer to Section 3, page 3, second paragraph.

Comment 4

Section 4, p. 3: It would appear that because Pit 5 and the Clearwell were filled with solids by settling that there would be more of a need to collect samples at depth than to collect them at numerous surface locations. Perhaps a bailer or clamshell-crane could be used to collect samples at 3-4 locations to a certain depth.

Response

The use of a pump would also be useful in collecting samples at varying depths due to the type of pump that will be used. As identified by the computer mapping modeling identified in the response to comment 1C, random sampling locations at varying depths have been identified. The crane cable or sample collection equipment will be marked to determine and verify the specific depths at which the sample is being collected. This information will then be translated onto the appropriate drawings for retention. In collecting samples from the Clearwell, it is generally believed that because of the consistency and type of material that has been collected, the use of the baler or the clam-shell crane would not be effective and could possibly present some concern over damage to the clay liner. These methods are still available in the event that the primary method chosen does not prove to be acceptable and field investigations provide sufficient assurance of the consistency of the waste material.

The determination of the depth that a sampling device can be inserted into the waste material will depend upon the location where the sample is collected. In the Clearwell it is estimated that in the center portion approximately 12-feet of sludges are present. Along the sloped sidewalls it is difficult to determine

the thickness of the material without taking precise measurements. The situation is similar for Waste Pit 5. At the center, the thickness of the sludge is approximately 29 feet. However due to the slope of the walls and the type of material that was placed in the pit, it is difficult to determine the actual thickness of sludge without measurement.

Resolution

No modification to the Sampling Plan is required. Modifications made in response to comment 1C provide clarification.

Comment 5

Section 4.1, p.4, 1st paragraph: During field sampling procedures, how does the sampling team know when the slurry pumping operation is removing too much fine suspended particulate matter from the sample material with the decant liquid? DOE should address the effects of the loss of the suspended material from the sample on the success/failure of the treatability study.

Response

The procedure for collection of samples utilizing the slurry pump operation has been modified to prevent the removal of excess fines from the material. The sample material will be collected directly into the 55-gallon drum and will NOT be allowed to overflow into an 85-gallon drum. The material will be collected until the 55-gallon drum is filled. The sample will be allowed to sit for at least 24-hours to allow excess water to separate and will then the water will be collected or returned to the pit. This will prevent the removal of excess fines.

Resolution

Refer to Appendices A through F and Section 4.1. Reference will be made to the fact that the excess liquid in the drums will be removed after it is allowed to decant for at least 24-hours. This will allow sufficient time for many suspended solids to settle out.

Comment 6

Section 4.4, p.6 4th paragraph: DOE should discuss the reason for sectioning material in the Vibra-Core sample prior to placement in the 35-gallon drum.

Response

Because of the anticipated length of the Vibra-Core tube and the desire (if feasible) to collect samples at discrete depths, it will be necessary to section off the Vibra-Core tube. This may also be required if the quantity of material contained in the tube exceeds the capacity of the container.

Resolution

Section 4.4 will be revised to address the rationale for sectioning of the waste material from the tube into a drum.

Comment 7

Section 4.5, p.7: DOE should include consideration of the lower level of control and large splash potential associated with the use of the clamshell-crane in sampling. These factors should be considered when choosing a sampling method as well as addressed in the Health & Safety Plan associated with this activity.

Response

It is fully recognized that the potential for splash presents a concern over the spread of contamination and/or the exposure of the personnel to the liquid. The Project Specific Health and Safety Plan identifies the personal protective equipment (PPE) required for all personnel working within 5 feet of the water line of the waste pits. All personnel within 5 feet of the water line or in the secondary restricted area will be required to wear Tyvek clothing and don respirators. This will mitigate the potential contamination of the personnel.

As for the contamination of the surrounding area. Two 6-mil layers of plastic will be placed in and around the sample collection area. This sample collection area will be bermed to contain any liquids that may spill during the sample collection. This will mitigate the potential for the release of liquids to the surrounding area. The establishment of the sample collection area is identified in Appendix A.

Resolution

No modifications to the Sampling Plan is required.

Comment 8

Section 5, p. 8: The work plan contains no discussion of the decontamination of the heavy equipment between sampling events. Details should be provided as to how and when this will occur.

Response

All sampling equipment will be decontaminated after each sampling activity. If decontamination is not possible or practical, the sampling equipment will be discarded consistent with the FEMP Waste Analysis Plan and the FEMP Waste Determination Plan. Clean chemical resistant gloves will be used during the decontamination process, and when handling any clean equipment.

Decontamination supplies will vary based on the media being sampled and the type of contamination encountered. The following is a list of supplies typically used, but not limited to:

- Laboratory grade non-phosphate detergent solutions
- Long-handled scrapers (stainless steel, glass)
- Long-handled, soft bristled brushes
- Portable low-pressure water sprayers
- Potable tap water
- Deionized water
- Polyethylene, teflon, or other suitable sheeting
- Waste drums, cans, and heavy duty plastic bags Absorbent materials, socks, and pads
- Wash/Rinse tubs

Decontamination of the sampling equipment will be performed between each sampling event to prevent the cross-contamination of the samples as identified in the RI/FS QAPP.

Resolution

Appendices B through F will be modified to identify the procedure that will be used to decontaminate the equipment between sample collections. The text in Section 5.4 will be also be revised accordingly.

Comment 9

Section 5.2, p. 9: It is unlikely that, if a liner puncture occurs, it would be above the water line on the waste pit. Discuss contingencies should a below the water level puncture occur.

Response

Appendices A through F of the Sampling Plan identifies that the sampling heavy equipment cable or sample equipment will be clearly marked to identify the depth of insertion into the waste pit. The depth that the equipment is inserted provides for an average minimum clearance of at least 5 feet from the synthetic liner. This provides adequate margin to assure that the liner at the bottom of the pit is not damaged. Additionally, the Sampling Plan which has been previously submitted and approved for the Waste Pit 5 Liner Repair provides instructions for the repair of the liner. These instructions are based upon the manufacturers recommendations for the repair of the liner. This procedure will be utilized only on an as-needed basis if it is determined that the liner is compromised. The combination of these controls and mitigating features should provide sufficient assurance that a liner puncture will handled appropriately.

Resolution

The text of Section 5.5 will be revised to reference the Pit 5 Liner Repair Work Plan. Also detail will be added to the text to discuss the controls associated with the clearance between the sample collection depth and the liner.

Comment 10

Section 6, p. 9: The section should discuss the collection of rinseate blanks from the various types of sampling equipment proposed.

Response

Following the collection of the samples and the subsequent decontamination of the sampling equipment, rinseate blanks will be collected. In addition, field and trip blanks will also be shipped to the laboratory that will be used to characterize the waste material. Environmental monitoring will be conducted in accordance with the RI/FS QAPP. Environmental Monitoring Section (EM) procedure, "Environmental Monitoring On-Site Media Sampling", EM-2-013, conforms to the QAPP for trip, field blanks, duplicate blanks, and rinseate blanks. One field/trip blank per sampling event or one per every twenty samples (whichever is greater) will be collected and accompany the samples to the laboratory. In addition, one rinseate blank per waste pit sampled will also be collected and accompany the samples to the laboratory.

Resolution

The discussion of the collection of the rinseate, field, and trip blanks will be identified in Section 5.3.

Comment 11

Table 1, p. 14, item 12: Reword the comment to clearly indicate if the materials do or do not exhibit any of the characteristics.

Response

This wording is identical to that existing in the Task 12 Initial Screening of Alternatives and the Draft issue of the Feasibility Study to provide consistency with documentation submitted for regulatory review. The samples that will be collected and analyzed as part of this effort will provide clarification as to the hazardous characteristics of the material. When this information is available, the data presented in subsequent document submittals will be revised to reflect this.

Resolution

No modification to the Sampling Plan is required.

Comment 12

Table 2, p. 17, item 12: Reword the comment to clearly indicate if the materials do or do not exhibit any of the characteristics.

Response

This wording is identical to that existing in the Task 12 Initial Screening of Alternatives and the Draft issue of the Feasibility Study to provide consistency with documentation submitted for regulatory review. The samples that will be collected and analyzed as part of this effort will provide clarification as to the hazardous characteristics of the material. When this information is available, the data presented in subsequent document submittals will be revised to reflect this.

Resolution

No modification to the Sampling Plan is required.

Comment 13

Table 3, p. 19, item 11: Reword the comment to clearly indicate if the materials do or do not exhibit any of the characteristics.

Response

This wording is identical to that existing in the Task 12 Initial Screening of Alternatives and the Draft issue of the Feasibility Study to provide consistency with documentation submitted for regulatory review. The samples that will be collected and analyzed as part of this effort will provide clarification as to the hazardous characteristics of the material. When this information is available, the data presented in subsequent document submittals will be revised to reflect this.

Resolution

No modification to the Sampling Plan is required.

Comment 14

Figure 1: Provide a scale and a north arrow.

Response

Will comply.

Resolution

Refer to Figure 1.

Comment 15

Appendix A, p. A-2, Bullet 3 (under Procedure): Some concern should be given to the moving of filled drums off of the plastic that has been set down to catch the overflow. Plastic perforates quite easily when heavy drums are moved.

Response

When placed on the plastic, the drums will be situated in wooden pallets to facilitate their transport. By the use of the pallets, the potential for tear of puncture of the liner is minimized. In addition, two layers of plastic will be used to further control the potential for tearing the plastic and mitigate the potential for spills. To further mitigate the potential for the spread of contaminants, the drum will be placed in a steel tub to contain any liquids that may spill.

Resolution

The text in Appendix A will be expanded to address the concerns and identify the controls and mitigating features that will be used.

Comment 16

Appendix A, p. A-3, Bullet 2: Cite the location of the RI/FS procedure for chain-of-custody referenced in the bullet.

Response

This references the chain-of-custody procedure found in the RI/FS QAPP. In addition, all sampling and analysis will be conducted in accordance with EPA Document SW-846 "Test Method for the Evaluation of Solid Waste, Physical/Chemical Methods".

Resolution

Reference will be made to the citation of the RI/FS QAPP chain of custody procedure. Additional text will be added to the section identifying the QA/QC requirements, the field sampling log, and the sampling labeling requirements.

Comment 17

Appendix C, p. C-2, 1st Paragraph: In the first sentence the SOP states that this sampling method will be used on Waste Pit 5 but in the second sentence it is stated that this procedure will apply to "any of the three locations identified." Correct this inconsistency.

Response

The use of the backhoe will be limited to the collection of samples only from the east end of Waste Pit 5 and possibly in Waste Pit 6 due to the reaching limitations of the equipment available.

Resolution

The text in Appendix C will be revised to reflect that this piece of equipment will be used only for the collection of material from Waste Pit 5 and possibly 6.

Comment 18

Appendix C, p. C-2, Bullet 1: Some thought might be given to resting the bucket of the backhoe on the edge of the 35 gallon drum and having a worker shovel from the bucket to the drum. Furthermore, it would seem that the water/soluble particle content of the sample would be different when the waste is shovelled from the tarp as when it is dumped from the bucket. Finally, state the size of the bucket that will be used on the backhoe. (A more narrow bucket might be easier to use.)

Response

The size of the backhoe that will be used is approximately 1/3 cubic yard. Based upon the dimensions of the backhoe bucket, it is not expected that the material would be able to be transferred directly into the drum. A polyethylene chute will be positioned on the top of the drum to facilitate the transfer of the waste material into the drum. This chute will have a 4 ft. x 4 ft. square opening at the top to and a round opening at the bottom alleviate this concern.

Resolution

Revisions of Appendix C will be incorporated in accordance with above response.

Comment 19

Appendix D, p. D-2, Bullet 7: Explain how DOE will insure no contamination is further spread as a result of dropping the bailer into the waste pit water.

Response

The baler device will be slowly lowered into the surface water until it rests firmly on the bottom of the waste material. Using the second cable of the crane, a counterweight with a guide sleeve will be used to sink the baler into the waste material. This will prevent the potential for the spread of contamination and allow a more accurate determination of the depth from which the sample was collected.

Resolution

The text in Appendix D will be revised to represent the method of sample collection identified in the above response.

Comment 20

Appendix E, p. E-2, Bullet 7, 2nd Sentence: This sentence is confusing. What is meant by "the water line"? Is it the water level in the pit or is it some line marked on the apparatus to determine how far the sampler may be inserted? Please clarify.

Response

The water line refers to the actual level of the water in the pits. What the intent of this is to determine the actual depth that the sample collection device may be inserted into the waste pit. Since the water level in the pits may vary depending upon the amount of precipitation, a stable reference point is identified for each pit. Prior to the start of each day of sampling, a measurement will be taken of the water depth at a predetermined location to allow for the correlation with the reference point. The sampling equipment will then be marked accordingly based upon any variances in the water level. The use of the water line as the bench mark was due to the ease in distinguishing the depth of insertion rather than some other reference point.

Resolution

The text in Appendices will be revised to state the top of the water rather than the water line. Appendix A will be revised to require the daily measurement of the water level from a predetermined location and correction of any sample markings on the heavy equipment cable or on the sample collection equipment. This will provide an accurate determination of the depth of sample collection and assurance that sufficient clearance is provided to assure that the liner is not jeopardized.

Comment 21

Appendix F, p. F-2, Bullet 7: Explain how DOE will insure no contamination is further spread as a result of dropping the clamshell into the waste pit water.

Response

It is fully recognized that the potential for splash presents a concern over the spread of contamination and/or the exposure of the personnel to the liquid. The Project Specific Health and Safety Plan identifies the personal protective equipment (PPE) required for all personnel working within 5 feet of the water line of the waste pits. All personnel within 5 feet of the water line or in the secondary restricted area will be required to wear Tyvek clothing and don respirators. This will mitigate the potential contamination of the personnel.

As for the contamination of the surrounding area. Two 6-mil layers of plastic will be placed in and around the sample collection area. This sample collection area will be bermed to contain any liquids that may spill during the sample collection. This will mitigate the potential for the release of liquids to the surrounding area. The establishment of the sample collection area is identified in the Appendix for each sample collection technique. In addition, if the sample collection location is within 10 feet edge of the water, two layers of 6-mil bermed plastic will be extended along the edge of the water. This will further prevent the spread of contamination to the surrounding area.

Resolution

Appendix A will be revised to identify the need to place the bermed plastic containment area adjacent to the sample collection location if it is within 10-feet of the edge of the water.